



## The World Banana Forum (WBF)

*Working together for sustainable banana production and trade*

**Report of the multistakeholder discussion session at Fruit Attraction 2023 (FA23)**

*Attended by representatives of all constituent groups*

**4 October 2023**

**Fresh Food Logistic Summit – IFEMA (Madrid, Spain)**

**Title:** Climate change. The banana industry as an example to follow. Measurement of carbon and water footprints

**Time:** 15:00 - 16:00

**Moderator:** Victor Prada (WBF)

**Speakers:**

- **Matheus Lima (WBF)**
- **Nicanor Cabrera (AgroFair)**
- **Jose Madriz (CLAC)**
- **Sergio Laprade (CORBANA)**
- **Pedro Faria (EFRAG)**


### **Opening remarks from the World Banana Forum (WBF), Food and Agriculture Organisation of the United Nations (FAO)**

Mr Prada, Secretary General of the WBF, FAO, outlined the agenda for the session and reminded participants of the nature and mandate of the WBF.

### **World Banana Forum (WBF), Food and Agriculture Organisation of the United Nations (FAO)**

Mr Matheus Lima, Environment and Sustainability Specialist (WBF), provided a concise overview of the carbon and water footprint (CWF) initiative and automatic tool, highlighting the milestones achieved through the different phases of the project, including the recent updates and new functions integrated in the tool. The CWF tool was developed to provide accurate data on the environmental impacts of banana producing operations, therefore supporting the optimization of processes and mitigation strategies. The project, which started in 2016, has undergone three distinct phases and has been implemented in eight countries in Latin America and the Caribbean, supporting conventional, organic and agroforestry producers in the measurement and reduction of their CWF.

The CWF tool is aligned with the calculation guidelines described by the International Panel on Climate Change (IPCC) and GHG Protocol, as well as with ISO 14064 and ISO 14046 standards. Its scope covers operations of cultivation and harvest, packing house, and transport to port. It encompasses carbon inventories of different emission sources such as fertilizers, fossil fuels, lubricant oils, refrigeration, extinguisher agents, solid and liquid residues, electricity, and land use changes. The tool also assesses the water footprint of banana producing organisations in terms of scarcity, eutrophication, human toxicity and ecotoxicity, quantifying not only water consumption but also water degradation at the field and packing house levels. This is possible due to its extensive database comprising all registered active ingredients of pesticides used in banana plantations (and their respective toxicity factors), as well as an extensive list of water scarcity factors of the main banana producing regions worldwide. All these factors are constantly revised and updated by FAO. The new version of the tool also calculates carbon removals from soil sequestration and afforestation projects. Moreover, it is pertinent to note that all information inserted in the tool by companies is strictly confidential and protected under FAO's data protection policy.



Mr Lima then provided an overview of the diverse types of results produced the tool and the myriad of customized graphics and tables that can be generated according to the user's needs and preferences. The tool is able to generate automatic reports to assist producers in informing their customers about the environmental impact of their companies, thereby facilitating compliance with the forthcoming European Union's Corporate Sustainability Due Diligence Directive (CSDDD) and the European Union's Corporate Sustainability Reporting Directive (CSRD).

Lastly, he added that a Proof of Concept of a distributed ledger (blockchain) system was developed to measure and provide transparency of the CWF of downstream operations of the value chain, including maritime transport, ripening stations, terrestrial logistics in destination countries and retail operations.

### **AgroFair**

Mr Nicanor Cabrera, Quality Manager (AgroFair), started his intervention by emphasizing that the banana industry not only contributes to climate change (e.g. GHG emissions from fossil fuel combustion, fertilizers use), but also experiences its severe adverse consequences (e.g. drought, floods, pest and disease migrations). AgroFair has actively collaborated with the WBF in the development of a methodological guide for measuring and reducing the carbon and water footprint of banana operations. Since the initial phases of the project, farms affiliated with AgroFair were involved in the activities related with the piloting, validation and implementation of the CWF tool across Latin American countries.

The project's success can be attributed to the tool's user-friendliness and the effectiveness of the practical, hands-on approach taken in the capacity-building training sessions. The tool enables users to quickly calculate the emissions of their farms and offers the possibility of analysing results in nine different types of graphics — providing opportunities to not only cut down emissions but also to enhance operational efficiency, leading to potential cost savings. The CWF tool also permits the identification of activities that contribute the most to a farm's carbon footprint. The identification of "hotspots" in the carbon inventory of farms and companies is key for the definition of target mitigation interventions and mitigation strategies.


Mr Cabrera then presented examples of results achieved through the tool's implementation in various production systems on AgroFair-associated farms in Panama, Nicaragua, Ecuador and Peru. He highlighted the importance of collecting reliable data, explaining the support provided to smallholders by AgroFair in this regard. He concluded by reiterating AgroFair's commitment to continuous CWF monitoring as a means to measure progress against the baseline and to assist producers in accessing the WBF's CWF tool. Lastly, he added that the tool's results are traceable and auditable, unlocking additional opportunities for certification and the potential development of a carbon-neutral banana market.

### **Latin American and Caribbean Network of Fair-Trade Small Producers and Workers (CLAC)**

Mr Jose Madriz, Coordinator for Banana Production and Trade in Costa Rica (CLAC), outlined CLAC's mandate, which involves overseeing the production and trade of Fairtrade bananas produced in Latin American and Caribbean countries. He provided a brief overview of the global banana industry and its vital role in food security and local as well as global socioeconomic development. He stressed that sustainability is the responsibility of all parties involved in the banana value chain, not limited to producers.

Quantifying the carbon footprint allows producers to become aware of their contribution to global warming, detect areas of greater contamination, and propose corrective measures to reduce the environmental impact of the banana industry. The process of measuring carbon footprints can also support the optimization of processes and reduction of costs. Similarly, the water footprint assessment, which comprising water scarcity and contamination considerations, helps improve water management by shedding light on the responsibilities of various stakeholders, including governments, social entities, and citizens.

Mr Madriz presented a comparative study conducted by CLAC on the water footprint and soil GHG emissions from two distinct production systems located in Colombia's Magdalena region: one conventional and the other operating under CLAC's agroecological *Programa de Incremento de la Produccion* (PIP). Data was gathered from computerized meteorological stations, along with in-field sensors used to measure water and soil parameters. The results revealed that agroecological farms outperformed conventional ones by achieving a 23% increase in productivity with a 20% reduction in synthetic fertilizer use, and a 12% reduction in water footprint.



Specifically, the improved performance of PIP areas compared to conventional ones was due to the improved physical and biological soil properties, which resulted in increased soil water retention, lower pesticide residues in water, and higher yields. Agroecological farms achieved a 29% overall reduction in GHG emissions, mostly attributed to the reduction on fertilizer applications. Mr Madriz then invited the audience to reflect on three potential future scenarios, encompassing undesirable outcomes, current trends, and the path forward for the industry. Participants were then informed of the establishment of a partnership with the World Banana Forum on Carbon and Water Footprint activities and that ten pilot farms from Colombia (Magdalena region) and Dominican Republic are deploying the CWF tool.

### Questions and Answers

Mr Alistair Smith, International Coordinator at Banana Link, asked about whether the diversification of cropping systems was included in the agroecological practices considered by PIP. Mr Madriz replied that CLAC primarily works with monocultural systems, but there is a strong desire to increase diversification. The main goal is to produce top-quality bananas with reduced reliance on agrochemicals.

Another audience member inquired about the feasibility of adopting agroecology in large plantations compared to small farms. Mr Madriz explained that while CLAC mainly works with smallholder farmers, there have been positive outcomes in large plantations in Ecuador, and other countries are showing interest. Agroecology is one of many solutions to combat climate change and ensure sustainability, but it needs to be adapted to each country's conditions. He also underscored the importance of shifting from sole productivity to profitability, considering environmental health and overall productivity.


### European Financial Reporting Advisory Group (EFRAG)

Mr Pedro Faria, Environmental Leader (EFRAG), outlined the contents of the [Draft European Sustainability Reporting Standards \(ESRS\) E1 on Climate Change](#). The major objectives of this forthcoming standard are to enable users of sustainability statements to understand 1) the actual and potential impact of the enterprise on climate change; 2) the efforts made to mitigate climate change in line with the Paris Agreement; 3) the enterprise's adaptation capacity; 4) the actions taken and their outcomes to prevent, mitigate and remedy negative impacts; 5) the management of material risks and opportunities linked to climate change impact and opportunities and; 6) the financial implications from climate change related risks and opportunities. Mr Faria then delineated the set of general disclosures, actions, metrics and targets that companies will be required to establish and comply with. These include establishing a transition plan, defining impacts, risks and opportunities (IRO) related to climate change, analysing their climate policies, addressing targets and metrics, and reporting greenhouse gas emissions across scopes 1, 2, and 3, among others.

### National Banana Corporation of Costa Rica (CORBANA)

Mr Sergio Laprade, Coordinator of the Banana Environmental Commission (CORBANA), highlighted Costa Rica's long-standing commitment to carbon neutrality since 2008, facilitated by a national norm that permits auditing and certification. In this context, he proceeded to present the CWF results for *San Pablo*, a CORBANA-affiliated 300-hectares farm. In this study, it was shown that GHG emissions were mainly generated by fertilizer use, fuel combustion, electric energy, refrigeration and organic matter decomposition in discharged waters from packing house facilities. Specifically, 41,17% of the emissions were associated with nitrogen-based fertilizers, followed by electricity and jet fuel. Data from 2016 and 2017 showed a significant GHG emissions reduction, mainly due to adjustments in fertilizer treatments, underscoring the importance of applying the correct dose at the correct time to avoid excess supply and nitrous oxide volatilization. Mr Laprade stressed that it is critical not only to offset GHG emissions, but also to meet the reduction targets set by Costa Rican national programs.

Costa Rican farms have implemented a mitigation programme focused on the optimization of electric energy use through the installation of solar panels, the efficient use of N-based fertilizer and the substitution of incandescent lamps with LED lighting. The forested area in/near banana plantations in Costa Rica increased considerably, from 5,000 hectares in 2012 to 140,000 in 2022, partially offsetting the sector's carbon footprint. While the EU has not yet designated bananas as a driver of deforestation, this could change soon, hence the industry seeks to showcase the ongoing (re)forestation efforts. It is pertinent to note that in 2022, 63% of banana farms in Costa Rica were certified as carbon neutral, with over 600,000 tonnes of CO<sub>2</sub> equivalent being compensated that same year.



Regarding the water footprint, the packaging facility at *San Pablo* farm achieved significant reduction in water consumption, with water use decreasing from 1,61 m<sup>3</sup> per banana box in 2007 to 0,08 m<sup>3</sup> in 2020. This demonstrates the potential to scale up solutions and innovations at both local and global scales.